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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,426	07/03/2003	Vikram Devdas	CISCP816	5113

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EXAMINER	
TSEGAYE, SABA	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,426	DEVDAS ET AL.	
	Examiner	Art Unit	
	Saba Tsegaye	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed 02/15/06. Claims 1-26 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

2. Claims 1-6, 8-13 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 2003/0074449) in view of Ghose et al. (US 2002/0004842) and Roe et al. (US 2002/0138611 A1).

Regarding claims 1, 5, 6, 8, 12, 13, 17, 21 and 22, Smith discloses, in Figs 3-5, a method for efficiently transmitting GFP-encapsulated client data frames from a local transport interface (NE1) and at least one local port (CX) associated therewith across a SONET/SDH transport network (120) to a remote transport interface (NE2) and at least one remote port (XC) associated therewith, the remote transport interface (NE2) having a buffer (226) for holing the GFP-encapsulated client data frames received across the SONET/SDH transport network (120).

Further, Smith discloses a buffer-to-buffer flow control that regulates traffic along a link between the transmitter port and the receiver port by controlling the rate at which the transmitter can send data to the receiver (claimed receiving information from the remote transport interface). The transmitter is able to transmit a frame along a link only if the receiver has indicated it can accept the frame. The receiving port controls the transmission of frames by giving permission to the sending port to send one or more frame to that particular receiving port (claimed transmitting more GFP client data frames responsive to the information). Each port keeps track of the buffer credit count, which is initialized to zero. For **each frame transmitted**, the credit count is

incremented by one, and **for each frame received**, the credit count is decreased (claimed tracking the number of GFP-encapsulated client data frames). Smith, further, discloses that the data packet protocol rules dictate that the number of packets in transit on the link cannot exceed the buffer credits assigned to the link. This ensures that the **buffer does not overflow** (0093) (claimed without consideration of loss or corruption of encapsulated client data frames so that the SONET/SDH transport network from the local transport interface to the remote transport interface is efficient utilized).

However, Smith does not disclose a flow control based on the number of bytes available in the remote transport interface buffer.

Ghose teaches buffer-to-buffer credits for implementing flow control based on ***the number of bytes*** received successfully (page 3, 0048) and tracking the number of bytes of GFP-encapsulated client data frames in transit from the local transport interface to the remote transport interface (0055). Further, Ghose teaches that credit also serve as an implicit acknowledgement of the correct receipt of the bytes transmitted using the prior credit values.

Furthermore, Ghose teaches that the preferred embodiment is to give credits for the transmission of each bytes with each credit measure corresponding to a single byte. Some obvious variations would be to use a different measure for the credits where each credit measure corresponds to multiples or submultiples of bytes (0153). As known, GFP frame has the same fixed length, i.e., the same number of bytes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teaching from Ghose of a flow control based on the number of

bytes to the frame based protocol networks disclosed by Smith in order to provide flexible, fast and reliable byte stream transport system with very low end-to-end latency.

Smith discloses a frame oriented client signal such as a Fiber Channel or Ethernet signal. According to the IEEE standard 802.1Q Ethernet frames are tagged. Furthermore, Ghose teaches a credit-based flow control mechanism for fast transport. Credits are sent in installments from the receiver to the source to allow the sender to transmit bytes, limited by the credit on hand at the sender. The arrival of a subsequent round of credits serve as an implicit acknowledgement for a previously transmitted sequence of bytes and implicit indication of the arrival of prior credits o the sender that may have got lost or corrupted. In addition, Ghose teaches that credits are used to sense congestion along all the links, each link can modify the system. The credits in combination **with congestion bit flags are used to control the sending rate (0051; 0060-0061).**

However, Smith in view of Ghose does not expressly disclose that sending an identification tag with at lease one of the GFP-encapsulated client data frames and round trip transit time in response to the identification tag.

Roe teaches a round trip delay measurement service packets will be sent by a source to a destination, including a time tag representing the frame transmission time. The round trip delay is calculated by the source based on the time tag value received (paragraph 0115).

It would have been obvious to one of ordinary skill in the are at the time the invention was made to add a time tag to calculate a round trip delay, such as that suggested by Roe, to the system of Smith in view of Ghose in order to control the sending rate (see Ghose 0051).

Regarding claims 2, 3, 9, 10, 18 and 19, Smith discloses the method wherein the client data comprises Fiber Channel signals and gigabit Ethernet signals (page 2, 0033-0035).

Regarding claims 4, 11 and 20, Smith discloses the method wherein the receiving step further comprises: initially negotiating with the remote transport interface for the total amount of space in the buffer reserved for GFP-encapsulated client data frames received from the local transport interface (page 8, 0144-0156).

Regarding claim 15, Smith discloses the transport interface wherein the at least on integrated circuit is selected from a group comprising ASICs and FPGAs (0234).

Regarding claim 16, Smith in view of Ghose discloses all the claim limitations as stated above, except for a processor that configured by software code stored in the memory subsystem.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use software-based machines. The benefit using software code device is that programs can be changed and upgraded and new futures are added easily than hardware changes.

3. Claims 7, 14, 23, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Ghose and Roe as applied to claims 1 and 8 above, and further in view of Kirchner et al. (US 5,745,685).

Regarding claims 7, 14 and 23, Smith in view of Ghose and Roe discloses all the claim limitations as stated above, except means for determining whether the identification tag has been received from the remote transport interface within a predetermined amount of time.

Kirchner teaches that a timer may be used to determine the length of time to wait for acknowledgment (column 8, lines 52-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a timer, such as that suggested by Kirchner, to the transmitter port of Smith in view of Ghose and Roe in order to provide a reliable and efficient way of confirming that a message sent by the transmitter to the receiver has been received and a way to automatically initiate resending the message as needed (see Kirchner column 2, lines 11-15).

Regarding claims 24 and 25, Smith in view of Ghose discloses all the claim limitations as stated above. Further, Smith discloses, in Fig. 2A, that class 2 signals are acknowledged by the responder port sending back and ACK frame, which is class 2 service uses both buffer-to-buffer flow control and end-to-end flow control. However, smith in view of Ghose does not expressly disclose a timer at the local port to provide a time limit to check for loss of GFP-encapsulated client data frames across the transport network. Using a timer at a transmitter side is well known technique.

Kirchner teaches that a timer may be used to determine the length of time to wait for acknowledgment (column 8, lines 52-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a timer, such as that suggested by Kirchner, to the transmitter port of Smith in

view of Ghose and Roe in order to provide a reliable and efficient way of confirming that a message sent by the transmitter to the receiver has been received and a way to automatically initiate resending the message as needed (see Kirchner column 2, lines 11-15).

Regarding claim 26, Smith discloses the network system for transporting GFP-encapsulated client data frames across a SONET/SDH transport network of claim 25, further comprising a network protocol for handling retransmission of lost frame (page 2, 0006). Further, Ghose teaches that a retransmission mechanism based on the use of acknowledgments from the receiver and a timeout facility for a transmitted packet at the sender. The duration of this timeout period is dynamically updated to reflect the recently perceived delay in the network

Response to Arguments

4. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

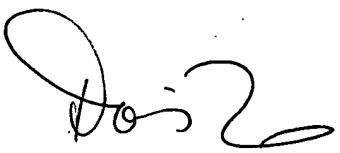
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571) 272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
April 17, 2006



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